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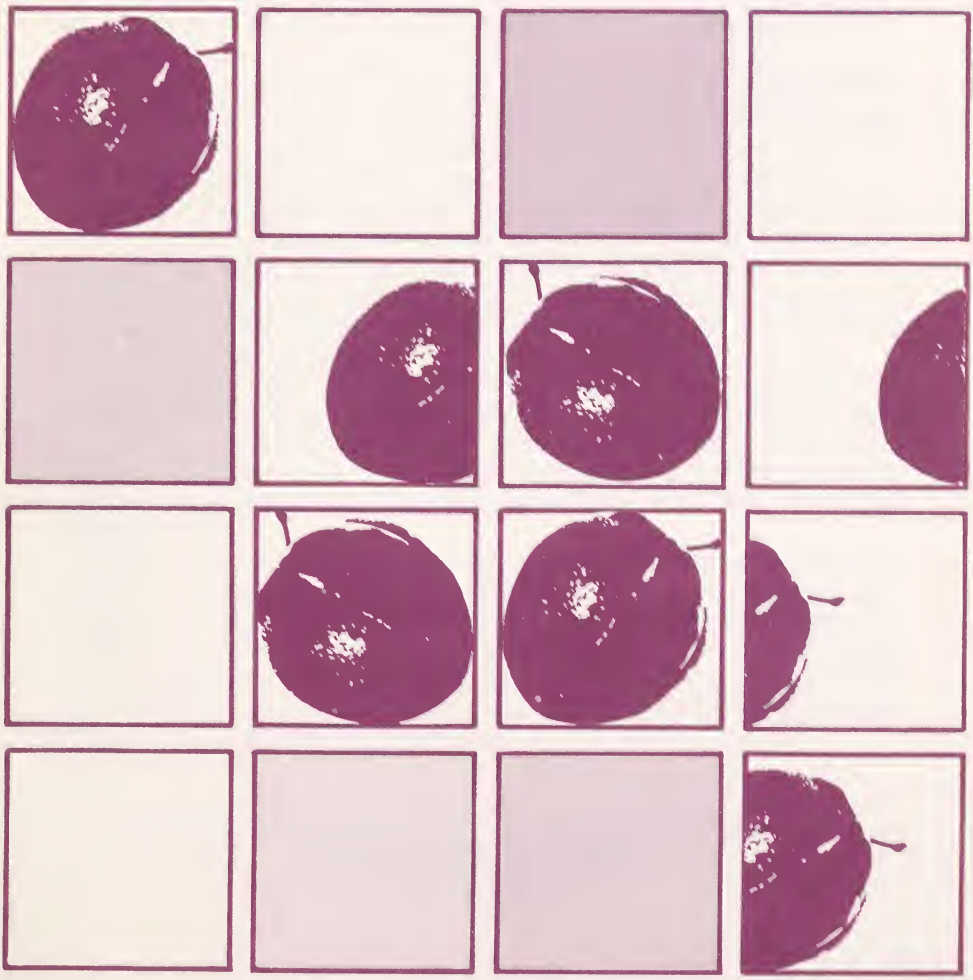

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Marketing Fresh California Plums

By James D. Hall, Agricultural Economist, and Shirley C. Sindelar, Marketing Specialist, Fruit and Vegetable Division, Agricultural Marketing Service

INTRODUCTION

More than 2,000 varieties of plums—consisting of about a dozen species—have been grown in the United States. However, most of the commercially important varieties are of two species: *Prunus domestica* or European plums, and *Prunus salicina* or Japanese plums.

Plums grown in California primarily for the fresh market are different from other varieties because they cannot be successfully dried without removing the pit. Only limited quantities are used for processing—mostly canning and freezing. Varieties produced in California for drying are referred to as prunes when in a fresh state as well as dried. A third category of prunes, grown chiefly in the Pacific Northwest and Michigan, consists of varieties suited for use in fresh, canned, or dried form. These are generally called purple plums or prune-plums when sold fresh.

Most of the fresh market plums grown in California are of the Japanese type. Plums of this species are native to China, but were domesticated in Japan about 400 years ago. They were introduced into California around 1870. Early improved varieties were developed by Luther Burbank. Tree growth habits vary considerably in character among Japanese varieties, ranging from low and spreading to upright. Leaves are of medium size, pointed, and free from hair on the lower surface. This distinguishes them from the European type. European plum trees are characteristically large, vigorous growers with large thick leaves which are dark green above and pale green beneath.

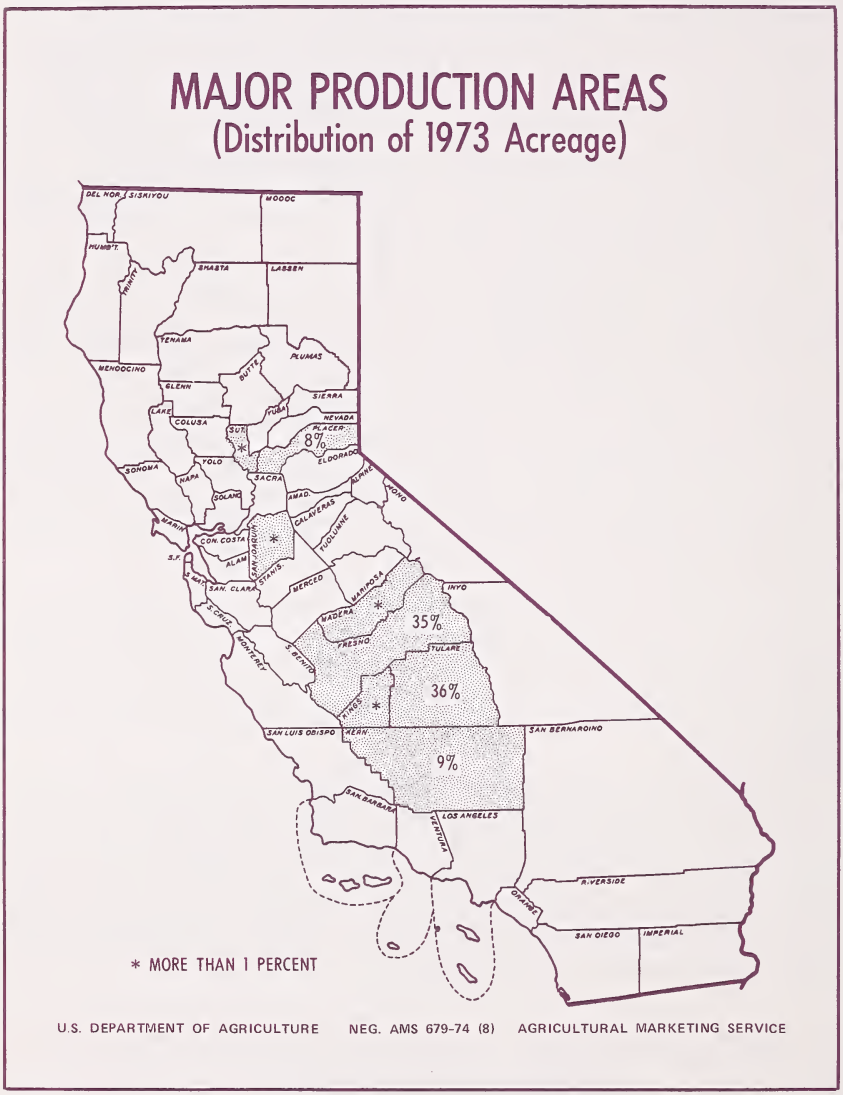
Fruit of the Japanese varieties is large and usually heart-shaped. It often has a pronounced apex, and is bright red or yellow in skin color. The flesh is juicy and firm, either red or yellow. Most European plums marketed in fresh form belong to the Imperatice group which are blue in color. The fruit is medium sized with firm flesh and thick skin.

Plums are one of the major fresh noncitrus fruits grown in California. At last count, there were about 1,600 plum producers in the State. The shipping season extends from mid-May to October. During the peak months of June and July, plum shipments lead all other deciduous tree fruit shipments, accounting for more than one-fourth of California's total. In 1973, California plums generated farm value in excess of $31 million.

GROWING AREAS

Plums can be grown in most of the fruit production areas of California. Adequate growth can be attained on a fairly wide range of soil types. However, ample good quality irrigation water is necessary to produce commercially acceptable crops. For proper leaf and bud development, Japanese varieties require 700 to 1,000 hours of winter chilling (temperatures below 45°F.) and European varieties, 800 to 1,100 hours. Japanese plums bloom in late February and March and are more susceptible to frost injury than European plums which bloom in March and April.

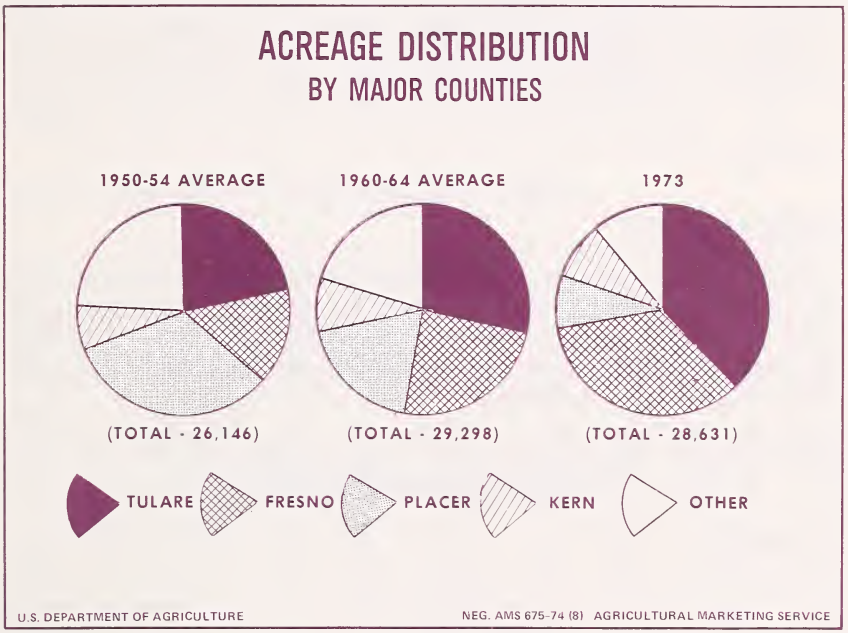
Figure 1.



Commercial plum acreage is reported for 30 California counties, extending from Butte in the north to Riverside in the south. Although plums are grown over a wide area of the State, the major production areas are concentrated in a few counties. In 1973, four counties —Tulare, Fresno, Kern, and Placer—accounted for nearly 90 percent of the total plum acreage in the State (fig. 1).

There has been a major shift in the geographical location of the California plum industry during the past 25 years. Acreage has declined substantially in the Sierra-Nevada foothills region, but has been offset by plantings in the lower San Joaquin Valley. Shifts in the relative importance of the principal plum-producing counties are graphically illustrated in fig. 2.

Figure 2.



Total plum acreage, bearing and nonbearing, in the major counties that produce plums is shown in table 1. Placer and Sutter counties accounted for over one-third of the State's total plum acreage during the 5-year period 1950-54. Plum acreage in these counties decreased to less than one-fourth of the total in 1960-64 and is currently less than 10 percent. Tulare and Fresno counties also contained more than one-third of the total plum acreage in the 1950-54 period. But, their share of the State total increased to over one-half in 1960-64 and is now nearly three-fourths of the total.

Table 1. Total Plum Acreage in Major Counties

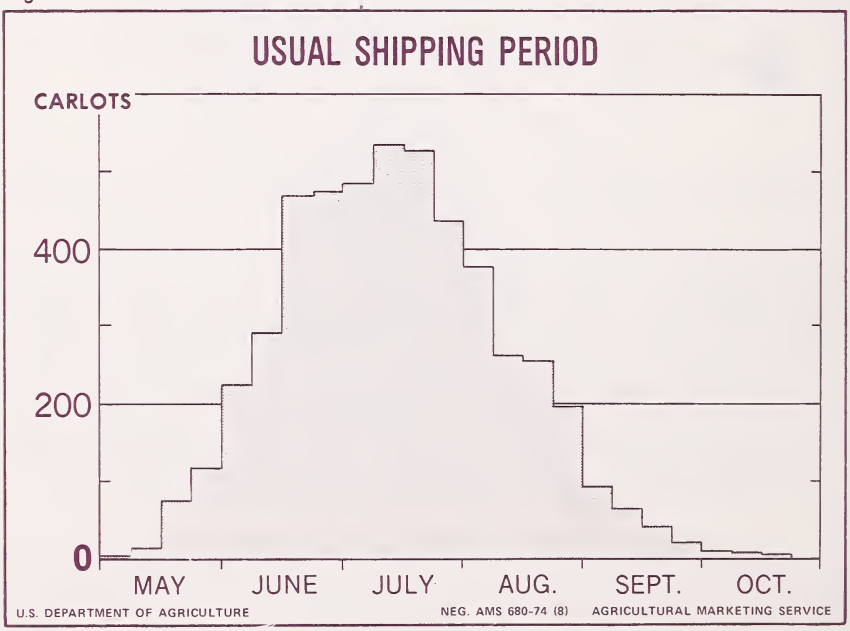
Year	Tulare	Fresno	Kern	Placer	San Joaquin	Sutter	Other	TOTAL
					Acres			
AVERAGES								
1950-54	5,632	4,015	1,807	8,457	1,007	872	4,356	26,146
1955-59	6,665	5,637	1,925	7,730	1,031	1,114	3,813	27,915
1960-64	8,264	7,085	2,419	5,628	1,090	1,380	3,432	29,298
1965-69	9,048	7,843	2,091	3,217	659	532	2,814	26,204
ANNUAL								
1965	9,392	7,593	2,335	5,174	916	520	3,310	29,240
1966	8,750	7,260	2,100	2,650	630	540	3,120	25,050
1967	8,750	7,690	2,020	2,760	630	540	2,490	24,880
1968	8,920	8,130	2,020	2,750	630	530	3,370	26,350
1969	9,430	8,540	1,980	2,750	490	530	1,780	25,500
1970	9,880	9,030	2,090	2,260	490	530	2,060	26,340
1971	10,427	9,419	2,284	2,324	485	299	2,161	27,399
1972	10,681	9,685	2,499	2,322	468	283	2,217	28,155
1973	10,450	10,124	2,617	2,327	465	283	2,365	28,631
1974								29,320 [1]

[1] Estimated.

SEASONALITY

Fresh plums are not well adapted to prolonged storage. The shipping season has been lengthened by developing varieties that mature in sequence from May into September and are shipped into October. Average weekly shipments during the 3-year period of 1971-73 are shown in figure 3.

Figure 3.



VARIETIES

Many varieties of plums have been developed in California during the 100 years since introduction. New varieties have resulted from systematic breeding to develop superior hybrids, chance seedlings, and bud mutants. Characteristics such as time of bloom and maturity, fruit size, color, eating quality, and intercompatibility with pollenizer trees determine which varieties are selected for commercial production. The relative importance of individual varieties shifts continually as older varieties are replaced.

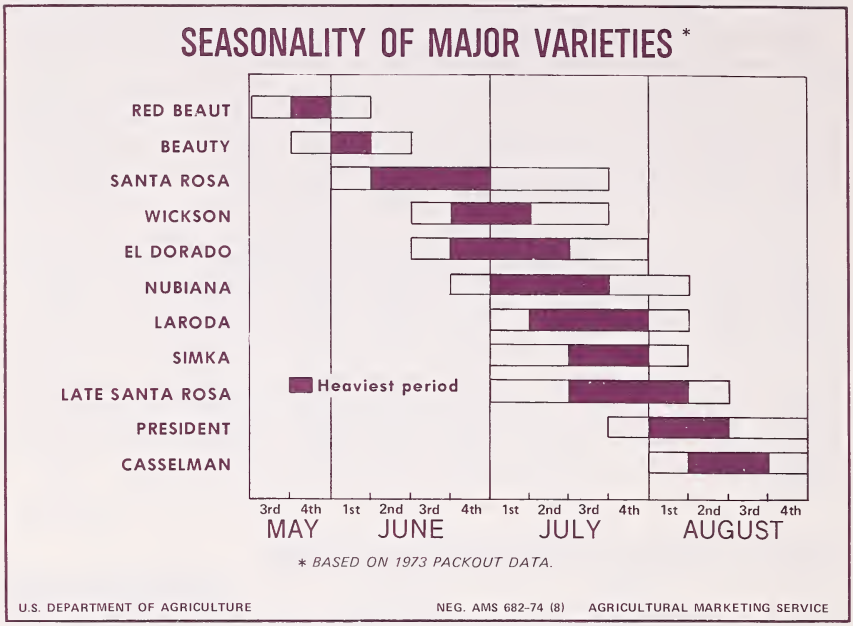
A total of 114 varieties of plums were shipped in commercial fresh market channels in 1973, but few attained significant volume. Six varieties constituted two-thirds of all plums shipped; the next 31 varieties, 21 percent; and the remaining 77 varieties accounted for only 13 percent of the total. As indicated in table 2, a number of the current leading varieties reached substantial shipment volume only in recent years. Amid the change, however, Santa Rosa has remained the leading variety for more than 25 years.

Table 2. Shipments of Selected Plum Varieties

Year	Beauty	Duarte	President	Santa Rosa	Late Santa Rosa	El Dorado	Burmosa	Laroda	Nubiana	Queen Ann	Casselman
						1,000 packages					
AVERAGES											
1950-54	471	644	324	1,447	149	63	...	...	...	...	...
1955-59	630	660	330	1,614	237	195	27	21	13	11	...
1960-64	425	531	335	1,560	360	469	184	283	227	126	17
1965-69	277	174	203	1,658	590	546	261	594	420	256	345
ANNUAL											
1965	388	212	260	1,932	596	624	242	633	395	204	145
1966	269	206	232	1,476	548	461	273	629	470	329	246
1967	267	175	168	2,130	696	558	262	596	279	161	451
1968	220	127	154	1,976	861	579	314	639	489	331	643
1969	241	149	202	778	249	506	214	473	465	253	239
1970	129	101	228	2,181	706	801	308	992	575	430	899
1971	188	93	168	1,744	564	666	319	708	428	264	779
1972	135	49	125	1,458	646	481	224	711	411	293	777
1973	123	53	181	1,463	643	399	194	733	332	214	860

Harvest periods for some of the more important varieties of plums are shown in figure 4, based on packout data for the 1973 season. Initial shipment dates for individual varieties may vary as much as 10 days to 2 weeks between seasons due to weather conditions.

Figure 4.



Following is a brief description of some important plum varieties in the usual order of maturity:

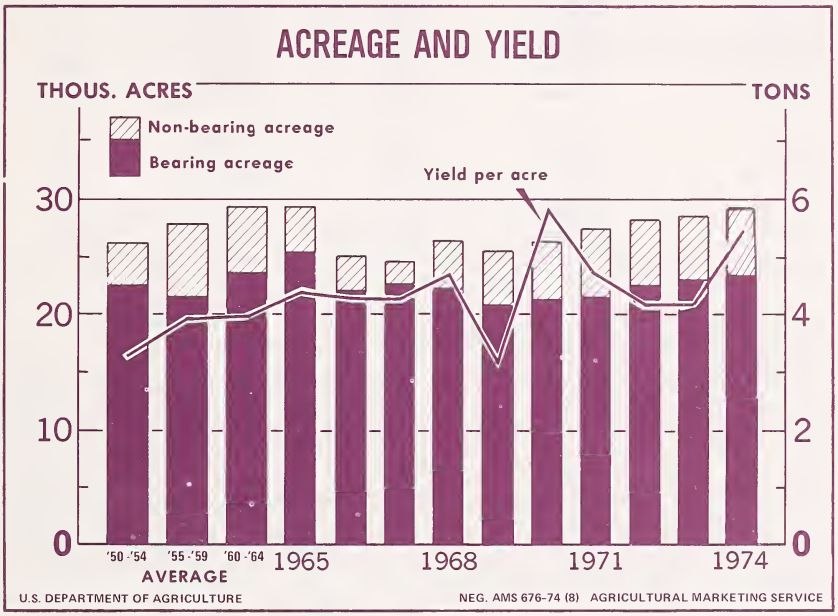
Variety	Usual dates of maturity	Fruit shape	Description
Red Beaut	May 10-30	Conical	Earliest of the commercial varieties, a recent introduction. Bright red skin with firm yellow-color flesh.
Beauty	May 20-31	Heart	This variety has been grown for over 60 years. Crimson skin, with scarlet-streaked amber flesh.
Santa Rosa	June 1-10	Conical	The largest volume variety. Skin is purple-crimson; flesh is yellow to dark red near skin.
El Dorado	June 15-30	Flat-oval	A midseason variety with black-red skin and light amber flesh.
Laroda	June 25-July 5	Conical	Skin has distinctive red over-color and yellow undercolor. Flesh is yellow. A large fruited variety.
Nubiana	July 1-10	Flat-oval	Firm, sweet-flavored plum. Skin is black-red and flesh light amber.
President	July 15-30	Oval	Late European variety. Large size, dark purple skin; juicy yellow flesh.
Casselman	August 1	Conical	Latest maturing of the major varieties. Yellow flecked crimson skin and yellow flesh.

ECONOMIC TRENDS

ACREAGE AND YIELD

Plum acreage has remained fairly constant during the past 2½ decades. It has shown substantially less variation over time than would be expected in view of the major geographical relocation. Although there have been shortrun increases and decreases in bearing acreage during the last 25 years, there is only 1 percent difference between the 1950-54 average and the 1970-74 average (fig. 5).

Figure 5.



During the early 1970's, bearing acreage has increased from 21,340 acres to 23,520 acres, an average annual increase of about 2 percent. Nonbearing acreage—trees less than 5 years old—constitutes about one-fifth of the total acreage and has increased at a slightly greater rate than bearing acreage. Some further expansion in bearing acreage during the later 1970's appears in prospect.

With bearing acreage remaining fairly stable, changes in crop size have been primarily a function of yield. There has been a modest upward trend in per acre yield over the past 25 years (table 3).

Table 3. Plum Acreage and Yield Per Bearing Acre

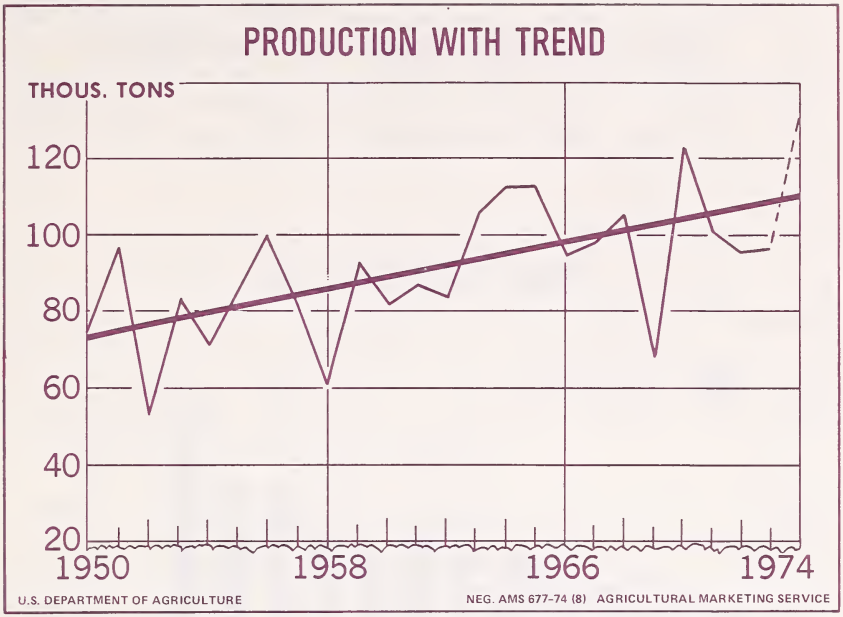
Year	ACREAGE			Yield per bearing acre
	Bearing	Non-bearing	TOTAL	
		Acres		*Tons*
AVERAGES				
1950-54	22,726	3,420	26,146	3.3
1955-59	21,608	6,307	27,915	3.9
1960-64	23,685	5,613	29,298	4.0
1965-69	22,734	3,470	26,204	4.2
ANNUAL				
1965	25,420	3,820	29,240	4.4
1966	22,090	2,960	25,050	4.3
1967	22,780	2,100	24,880	4.3
1968	22,380	3,970	26,350	4.7
1969	21,000	4,500	25,500	3.2
1970	21,340	5,000	26,340	5.8
1971	21,660	5,739	27,399	4.7
1972	22,783	5,372	28,155	4.2
1973	23,032	5,599	28,631	4.2
1974	23,520	5,800 [1]	29,320 [1]	5.5

[1] Estimated.

PRODUCTION, USE, AND VALUE

California plum production has shown a long-term upward trend, increasing at the rate of 1,500 tons a year during the 25-year period from 1950 through 1974. However, plum production is subject to relatively large changes in tonnage from year to year due to the influence of weather. Annual variation in crop size has ranged from 45 percent less than the previous year's output to 84 percent more. Deviation from trend values has ranged from -35,500 tons in 1969 to +20,000 tons in 1974 (fig. 6).

Figure 6.



California plums are produced for marketing in fresh form. This outlet accounts for 95 to 97 percent of utilized production. Each year relatively small quantities of plums, usually 3,000 to 5,000 tons, are processed. Prior to 1967, when estimates were discontinued, tonnage not utilized accounted for less than 5 percent of the crop.

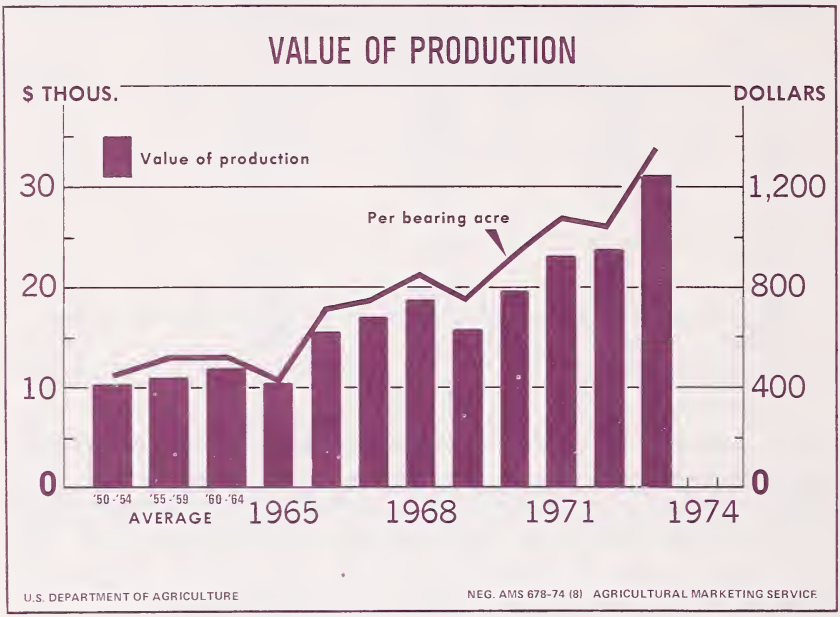
Table 4. Plum Production, Utilization, and Value

Year	Production	Not utilized [1]	Fresh sales	Processed	Value of utilized production	Value per bearing acre
		Tons			*1,000 Dollars*	*Dollars*
AVERAGES						
1950-54	76,400	3,200	71,080	2,120	10,216	449
1955-59	84,200	2,400	78,180	3,620	10,957	507
1960-64	94,400	2,800	86,480	5,120	11,997	508
1965-69	95,800	3,400	87,940	4,460	15,595	694
ANNUAL						
1965	113,000	5,000	102,600	5,400	10,476	412
1966	95,000	9,000	82,400	3,600	15,652	709
1967	98,000	3,000	90,400	4,600	17,100	751
1968	106,000	....	100,700	5,300	18,868	843
1969	67,000	....	63,600	3,400	15,879	756
1970	123,000	....	119,300	3,700	19,680	922
1971	101,000	....	98,200	2,800	23,129	1,068
1972	96,000	....	93,300	2,700	23,808	1,045
1973	97,000	....	93,800	3,200	31,137	1,352

[1] Not reported after 1967.

Farm value of the plum crop ranged narrowly, around $10 million to $12 million annually, from the early 1950's through the mid-1960's. Beginning in 1966 value increased at a fairly rapid rate, reached $20 million in 1970, and a record high of $31 million in 1973. Value per bearing acre rose from a 15-year average (1950-1964) of just under $490 to about $920 in 1970 and $1,350 in 1973 (fig. 7).

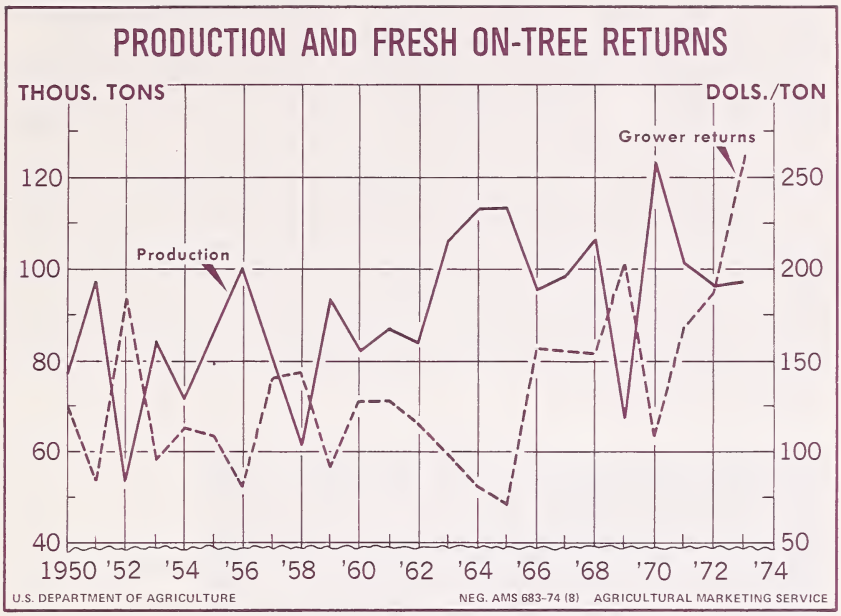
Figure 7.



GROWER RETURNS

Returns to growers of fresh California plums have, for the most part, fluctuated as a function of supply (fig. 8). Since 1966, however, they have shifted upward, primarily due to inflationary pressures. Equivalent on-tree grower returns ranged between $71 and $184 per ton from 1950 to 1965. The lowest level occurred in 1965, the second consecutive year of a then record-large production level. In 1966, production declined and grower returns recovered. They have ranged between $107 and $261 per ton from 1966 through 1973.

Figure 8.



HARVESTING AND HANDLING

Plums are ready for picking when they will continue to ripen off the tree. Color changes that plums undergo shortly before harvest are the most important standard of maturity. Attempts have been made to develop objective measures of maturity, such as soluble solids (sugar content) and degree of firmness. So far they have not proven reliable or practical.

Japanese varieties change from green to light yellowish-green, gradually develop straw color, and finally turn yellow or red. Some plum varieties change from green to greenish-blue to reddish-purple and then to dark purple. These color changes serve as an index of maturity when plums are inspected under U.S. grade standards. Indices have been developed for many varieties of plums. For example: Beauty, "85 percent of surface yellowish-green, or trace of red;" Casselman, "¾ of surface distinct red, or full light yellow color;" President, "¾ of surface reddish-purple, and under color light yellowish-green, or full light greenish-yellow." Maturity requirements must be met at the time of packing. After plums have been picked and stored they will increase in color, but not in maturity. It is essential, therefore, that plums be sorted when they arrive at the packinghouse.

Plums ripen first at the top of the tree and later at the bottom. Trees are usually picked more than once, but the number of pickings depends on factors such as the uniformity of ripening, market conditions, fruit quality, and weather. Fruit harvested for local sale is picked at a more advanced stage of maturity than that destined

for distant markets. Plums shipped to eastern markets are picked at a firm-ripe stage to reduce injury during the various stages of marketing and to ensure good quality when sold at retail stores.

Plums must be harvested and handled with care because they are highly perishable. They are picked by hand into buckets. Care is taken to prevent skin puncturing by sharp or rough objects. Fruit is poured slowly from picking buckets into boxes or bins with the least possible drop to minimize bruising and crushing. To prevent fruit damage from direct exposure to the sun, bins and field boxes are placed in the shade or covered whenever possible. Fruit harvested late in the afternoon is sometimes left in the orchard overnight to cool. Usually, however, plums are hauled to the packinghouse as soon as possible. Bins have largely replaced field boxes, except in small orchards, because they are more economical to handle and transport.

Figure 9.—Care is taken in harvesting plums to prevent injury to the fruit. Plums are picked by hand and placed in buckets.

PREPARATION FOR MARKET

Most plums are packed and shipped from large central packinghouses. Modern packinghouses are highly mechanized and are capable of packing more than 1,000 containers an hour. However, some plums are packed on the farm in low-volume ranch-pack operations. This method allows growers an opportunity to pack their fruit at lower cash costs. Ranch-packing operations usually concentrate on riper fruit for special market outlets, mostly within the State.

PACK REQUIREMENTS

U.S. grade standards establish guidelines for packing fresh plums. The U.S. Department of Agriculture works with State personnel and industry members to develop these standards. Requirements have been established for four grades: U.S. Fancy, U.S. No. 1, U.S. Combination, and U.S. No. 2. Grade standards are carefully followed when inspecting and certifying fruit for market and provide a basis for reliability of the quality as marked.

All California fresh market plums must meet the requirements of the Agricultural Code of California and a Federal marketing order program known as the California Tree Fruit Agreement. This program regulates the handling of pears, plums, and peaches. It has been in effect since 1939 and has been amended several times to incorporate provisions which meet changing production and marketing conditions. The primary purpose of the order is to ensure shipment of high quality fruit to benefit both producers and consumers. It provides for minimum standards of quality and maturity; along with grade, size, container, and pack regulations. Other provisions pertaining to plums include market research and development, production research, and paid advertising.

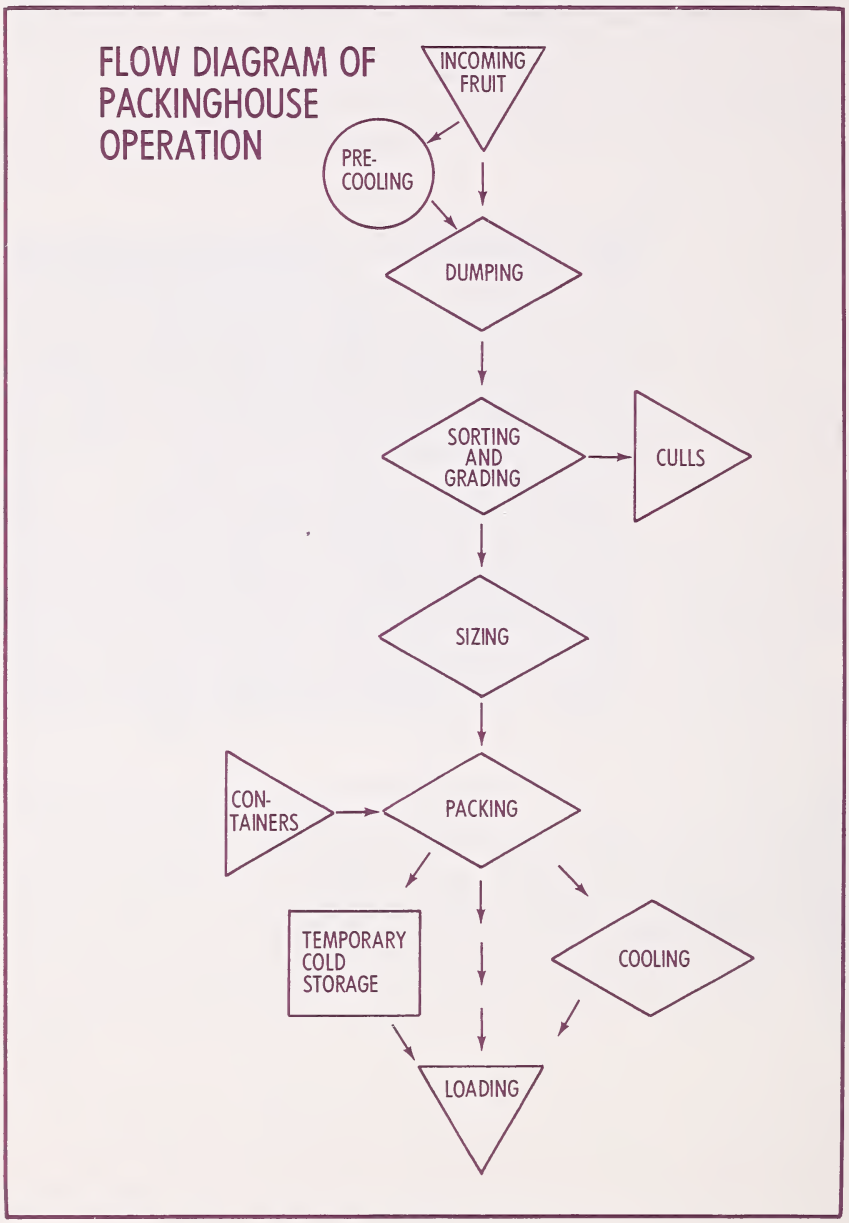
An administrative body of plum growers, the Plum Commodity Committee, submits recommendations for plum regulations to the Secretary of Agriculture. On his approval and issuance the regulations have the full force and effect of law. Regulations apply to all plums destined for local, interstate, or foreign markets. Plums must be inspected by the Federal-State Inspection Service which issues certificates indicating compliance with marketing order requirements. Costs of the program, including inspection at shipping point and the promotion program, are paid from assessments levied on the first handler.

Grade and size regulations are established each season based on the Plum Commodity Committee's evaluation of crop and market conditions. All varieties are usually required to grade at least U.S. No. 1 except that increased tolerances for specified defects are permitted for some varieties. In addition, all varieties must comply with pack and container marking regulations. In recent seasons, about 40 of the major plum varieties have been subject to specific minimum size requirements. Quality control in the packing operation is essential to ensure that all plums meet the requirements of the marketing order regulations.

PACKINGHOUSE OPERATIONS

Operations performed in the packinghouse include several basic functions. These are receiving field-run plums, sorting by grade and size, packing, loading on trucks and rail cars, and disposing of cull fruit. The sequence of these operations is shown in figure 10.

Figure 10.



Physical layout of packinghouses and facilities used in packing plums may vary among commercial plants, but the sequence of operations is essentially the same. The degree of specialized equipment depends primarily on whether a plant packs only plums or other fruit such as grapes, peaches, and pears. Modern, efficient packinghouses are highly mechanized with many operations fully automated.

Fruit received at the plant may be immediately precooled by forced air or hydrocooling, or moved directly through the sequence of operations. Field containers are dumped automatically into tanks or onto rollers at which time field debris is removed. If the plums are to retain their waxy "bloom," they bypass washing. Undersized fruit is eliminated mechanically by a presizer before sorting begins. Certain varieties of plums must meet minimum size requirements of the marketing order program. Minimum size regulations specify the maximum numbers of plums of a given variety contained in an 8-pound sample. This can be translated into minimum diameter requirements and equivalent packed sizes.

Plums are sorted by hand as they move on a conveyor belt. Workers remove defective fruit and grade it to ensure that quality requirements of the marketing order regulations are met. Cull fruit is diverted to a collection point for removal from the packinghouse. Sound fruit is conveyed to automatic sizers which separate plums into various uniform size groups to facilitate packing, which is done manually or automatically.

Details of the packing operation depend on which of the major types of containers are used: crates, lugs, or tight-fill cartons.

Standard four-basket crate: Until recent years, crates were the principal container used by the plum industry. Rapidly increased cost of skilled labor used to hand pack crates led to the development of other containers. Each crate contains four splitwood baskets which taper outward from the bottom. The packer selects plums from several predetermined size categories and arranges them in three layers in a systematic pattern according to size. The same layer in each basket has an equal number of fruits. A larger number of plums is required to fill the wider top layer of the basket. Packed crates hold 24-32 pounds or 112-340 plums, depending on size. Fruit size indicated on each crate reflects the arrangement of the plums in the top layer of each basket, such as 3 x 4 or 4 x 4.

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Figure 11.—Plums are hand packed into four basket crates. They move along a conveyor belt and are placed in baskets by skilled packers who are able to select the appropriate size for each layer.

Lugs: Several containers used for packing plums are called lug boxes. Their capacities range from 18 to 30 pounds and various packing methods are employed. The principal container used today is the standard loose-fill lug which can be packed mechanically with about 28 pounds of plums. Fruit size is generally indicated by the equivalent size designation for plums packed in four-basket crates (3 x 4, 4 x 4, etc.). Some larger plums are placed on molded plastic trays which are packed two layers deep in lugs holding about 18 pounds. Size is designated by the number of plums in the package.

Figure 12. — Loose-fill lugs can be packed entirely by mechanical means. Plums roll off the conveyor belt into the container.

Figure 13.—Packing of molded plastic trays for two-layer lugs.

Tight-fill cartons: Tight-fill containers, holding 28-30 pounds of plums, have gained in importance in recent years. The packing operation is fully automated. Sized plums roll off the conveyor belt into the container. They are settled by vibration with top pressure, and a cover is seated against the lower half of the container and firmly fastened. Fruit size is indicated by count or by the equivalent four-basket size designation. This packing method results in substantially lower cost than for the four-basket crate.

Container markings are prescribed under the marketing order. Every container of plums must show, in plain sight and in plain letters on one outside end, the following: name and address of the person or firm that authorized the packing; name of the variety or "unknown variety;" and the size of plums in the container.

All plums must be inspected by the Federal-State Inspection Service to ensure that all marketing order requirements have been met. Exceptions provided for are minimum quantity exemption and inspection waivers, but the plums must meet the requirements of the order and are subject to inspection at any time. Inspectors

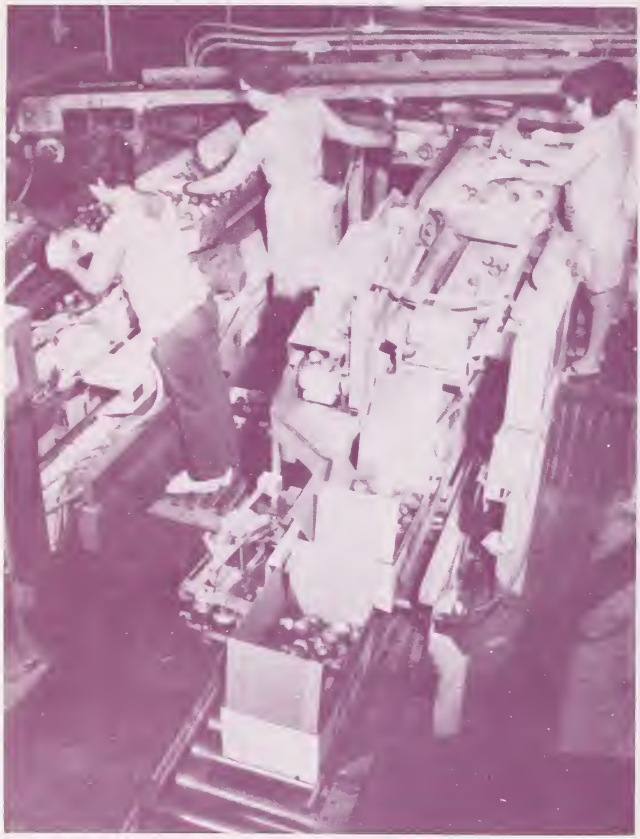


Figure 14.—Packing line for tight-fill cartons. Presized plums move along conveyor belt to filling equipment.

draw random samples from lots offered for inspection, examine them in detail for compliance with regulations, and issue a USDA inspection certificate.

To ensure a reasonable shelf life, plums are cooled as soon as possible after packing, with a temperature of 32° F. desirable. Some varieties may be stored at this temperature as long as a month prior to shipment. But most plums are loaded on refrigerated rail cars or trucks soon after cooling.

MARKETING

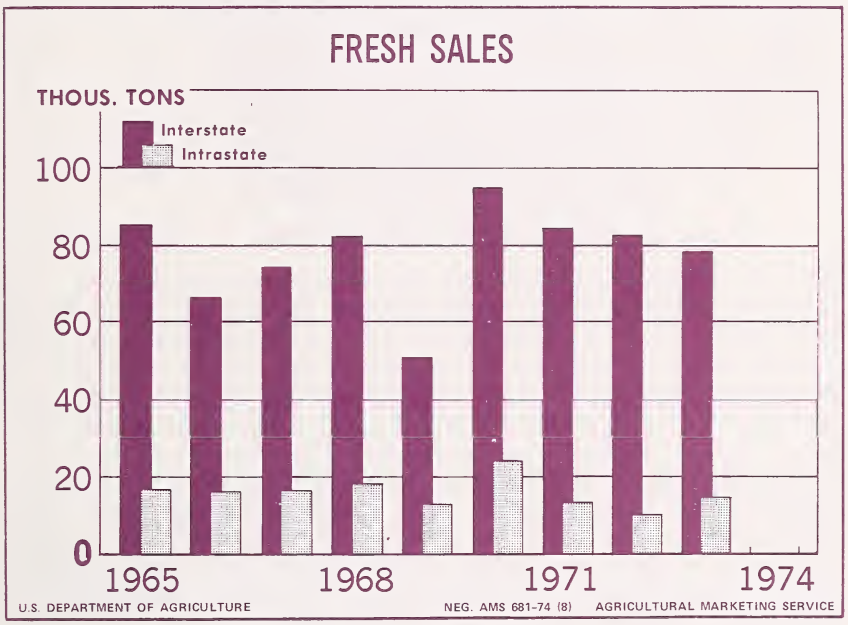
Orderly marketing of the plum crop requires collecting, disseminating, and interpreting a large volume of information. Federal, State, and industry organizations cooperate in the task. Early each season—usually about the first of May—the Plum Commodity Committee meets to adopt a marketing policy for the coming season. All significant factors bearing on the developing crop are discussed. The Committee estimates production by variety and district, projects starting dates for each of the major varieties, and evaluates fruit size and quality. Since crop size is the primary price-

making force for plums in any given year, reports on crop conditions are of particular interest to both sellers and buyers.

Production estimates are also made by the California Crop and Livestock Reporting Service, in cooperation with the Crop Reporting Board of the Statistical Reporting Service, USDA. The initial quantitative forecast is based on conditions as of June 1 with a July estimate reflecting any changes in crop conditions. These reports are widely distributed and available to anyone free of charge.

Distribution of fresh plum sales to markets within California and out of the State is shown in figure 15. In most recent years, 75,000 to 85,000 tons of fresh plums have been shipped outside California. Intrastate sales account for a significant (15 to 20 percent) share of total fresh plum sales.

Figure 15.

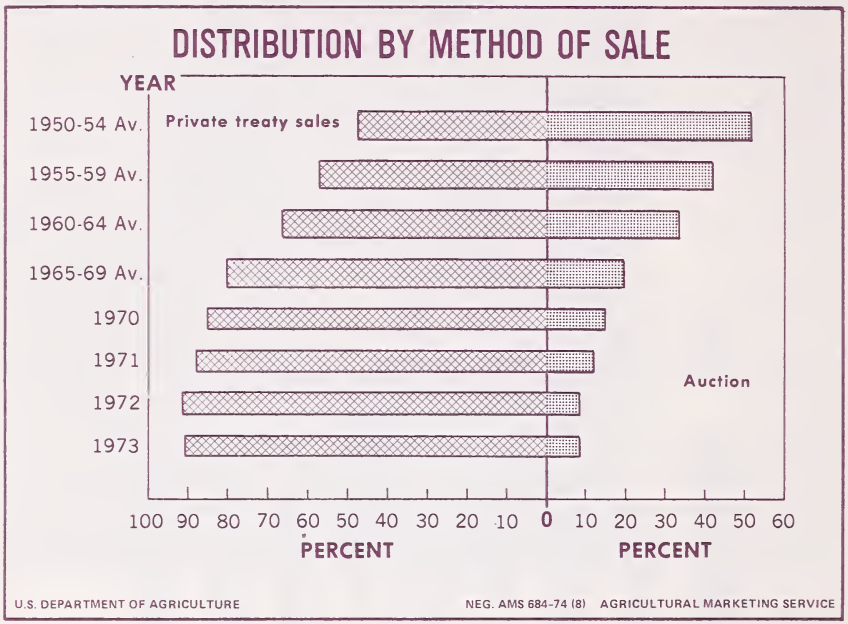


In the past, auction markets in 10 major eastern and midwestern cities were a key factor in establishing daily market prices for plums. Auction sales accounted for more than 50 percent of all fresh out-of-State movement during the 1950-54 period. Ten years later, auction sales had declined to about one-third of the market, and in recent years to less than 10 percent (fig. 16).

Collection and dissemination of marketing information increased in importance as private transactions at shipping point became the principal method of selling fresh plums. This function is performed by the Federal-State Market News Service, a cooperative effort of the U.S. Department of Agriculture, and the California Department of Food and Agriculture. Reporters stationed in Bakersfield and

Fresno collect the market information for release in a daily report published at Sacramento. This report shows f.o.b. shipping point price quotations for principal plum varieties, packout, shipments, and market trends. Information is also available daily from radio and recorded telephone reports. Market News reports also carry information concerning supplies and wholesale prices in major terminal markets.

Figure 16.



Independent packer-shippers and grower-owned marketing cooperatives are the principal sales agents for plums, but some farmers act in the dual capacity of grower-handlers. Most shipping-point buyers are agents representing large volume chain stores, groups of stores, or independent retailers. Auction, consignment, and roadside sales account for the remainder.

California plum shipments are widely distributed throughout the United States. Unload data reported by the Market News Service indicate the following regional distribution of plums during recent years: 10 eastern cities, more than 40 percent of the U.S. total; 11 midwestern and 8 western cities, about 25 percent each; and 12 southern cities, 10 percent. Five Canadian cities generally account for 12-14 percent of the combined U.S. and Canadian total unloads.

A program promoting the sale of California plums nationally is managed by the California Tree Fruit Agreement. Field representatives who call on merchandisers, buyers, brokers, wholesalers, and auctioneers are an important part of the program. The largest single

expenditure is for media advertising, principally radio. A consumer education program provides publicity releases for food editors, utility, Extension, and chain-store home economists.

CONSUMPTION

Fresh California plum sales are currently sufficient to provide nearly 1 pound for each person in the United States. This is equivalent to about seven or eight plums per person. Nutritive value of an average size plum, about 2 ounces, is as follows: food energy, 25 calories; carbohydrate, 7 grams; calcium, 7 milligrams; ascorbic acid, 3 mg.; iron, 0.3 mg.; niacin, 0.3 mg.; thiamin, 0.02 mg.; vitamin A, 140 International Units. However, it is the attractive appearance and juicy, sweet-tart flavor that makes plums a favorite summer fruit.

Consumers should be aware that fully ripe plums not only vary in color (yellowish-green, red, or purplish-blue) but also in flavor. To find a variety suited to an individual's taste, it is best to sample several kinds. Immature (hard, poorly colored, very tart) and overripe (excessively soft and often leaky) fruit should be avoided. Plums of good quality are plump, clean, fresh in appearance, fully colored, and fairly firm to slightly soft.

SUMMARY

California produces most of the plums distributed to fresh markets in the United States. About 1,600 growers produced 130,000 tons of plums in 1974. Nearly all were used in fresh form.

The plum industry in California has undergone major changes over the past 25 years. Plantings are now concentrated in the central portion of the State. Total acreage has remained fairly constant, but due to higher yields, production has trended upward. Many new varieties have been developed and have replaced those that were predominant 25 years ago. Although there are currently more than 100 varieties produced, six varieties account for two-thirds of the production.

Increased labor costs have necessitated a change to containers that can be packed by systems utilizing automated equipment. In recent years loose-filled lugs have become the leading shipping container instead of hand-packed four-basket crates, formerly the principal container.

Farm value of the crop ranged from $10 to $12 million annually from the early 1950's to the mid-1960's. Since then, farm value has increased at a fairly rapid rate, reaching a record $31 million in 1973.

All fresh market plums are required to meet quality, size, and other specifications of a Federal marketing order, commonly known as the California Tree Fruit Agreement (CTFA). Research and promotional activities are also carried out under the order. Quality requirements are based on U.S. Standards, and all fresh market

shipments are inspected by the Federal-State Inspection Service to assure compliance with these and other marketing order requirements.

Information from a number of sources aids plum growers and shippers in achieving orderly marketing. The principal industry organization involved in this is the Plum Commodity Committee of CTFA. This committee estimates production by variety and district, projects starting dates, and evaluates sizing and quality. The California Crop and Livestock Reporting Service also estimates production. The Federal-State Market News Service reports shipping point and terminal market prices for the principal plum varieties, packout, shipments, and market trends.

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